

Na/Ca ratio of coccoliths as a potential paleo proxy

ANNE ROEPERT*, LUBOS POLERECKY, JACK J. MIDDELBURG

Department of Earth Sciences – Geochemistry, Faculty of
Geosciences, Utrecht University, Utrecht, The Netherlands
(*correspondence: a.roepert@uu.nl)

The elemental composition of coccoliths is widely used for paleo reconstructions. Here, we investigated environmental samples of individual coccoliths of *Emiliana huxleyi* along a WE transect in the Mediterranean Sea for their Na/Ca ratio with nano-scale secondary ion mass spectrometry (nanoSIMS) to elucidate whether or not the Na/Ca ratio of coccoliths could potentially be used as a proxy. Although we observed high variability between individual coccoliths at each site, overall, the Na/Ca ratios significantly differed between sites and correlated or anti-correlated with several environmental parameters, like salinity, alkalinity, DIC, and nutrients (phosphate and nitrate). As environmental parameters covary, it remains to be established what is controlling the sodium content of coccoliths and whether or not coccolith Na/Ca is additionally influenced by vital effects.